KNAUF

SHAFTWALL MANUAL

Lift and Service Shaft Walls

Build on us.

All works undertaken to prescribe the use of or to install Knauf's products and systems must be performed by experienced and, where required by applicable laws, appropriately licensed personnel. Knauf's products and systems must be installed in accordance with Knauf's installation manual, Systems+, and any other product or system specific literature issued by Knauf. If installation works are not performed in compliance with such product literature, by experienced and licensed personnel, or are incorrectly performed by experienced or licensed personnel, there is a serious risk that the works, application and performance of the relevant system or products will be compromised, which could result in property damage, injury or death.

All personnel who undertake works to install Knauf's products and systems must comply with all applicable health and safety laws, including wearing appropriate personal protection equipment. If personnel do not comply with applicable health and safety laws, including by not wearing appropriate personal protection equipment, there is a serious risk of injury or death.

All of Knauf's products and systems must only be used for the uses identified in this document (and any other product or system specific literature issued by Knauf from time to time). Before prescribing or using any Knauf product or system for any other use, you must contact Knauf. All recommended component parts for Knauf's products and systems should be used and not substituted for other products. If component parts are substituted, there is a serious risk that the works, application and performance of the relevant system or products will be compromised, which could result in property damage, injury or death.

This product manual is intended to provide general information on plasterboard products and should not be used as a substitute for professional building advice. We recommend you use a qualified person to install Knauf plasterboard. To ensure the information you are using is current, Knauf recommends you review the latest building information available on the Knauf website Knauf.com. For further information contact TecASSIST or your Knauf representative.

Content

SHAFTWALL

Introduction

Riser and shaft walls can house electrical, mechanical or hydraulic services that run between multiple floors in high-rise construction.

These walls may be required to:

- Prevent the spread of fire between floors through the riser or shaft
- Protect the services within from fire outside
- Provide acoustic separation between loud services and habitable spaces in the building.

Riser and shaft walls perform an important function in the event of a fire, by minimising the spread of flames and safeguarding occupants attempting to leave the building.

GENERAL INFORMATION

Features and Benefits

- No wet trades required
- Cost effective, lightweight and space efficient
- Fast and easy to construct from one side, eliminating the need for access within the shaft
- Permits easy inclusion of services and penetrations as cables, dampers and pipes
- Satisfies NCC provisions for riser and shaft walls

Design Options

Knauf Shaftwall systems are available with various configurations of FireStop linings to achieve Fire Resistance Levels (FRLs) up to -/120/120 from both sides and acoustic ratings up to R_w 52 ($R_w + C_{tr}$ 42) to comply with the requirements of the NCC.

CH-studs of different sizes and thicknesses are available to allow for the construction of some Shaftwall systems up to a maximum height of 5.5 metres. Knauf Shaftwall systems can incorporate typical service penetrations such as large and small diameter pipes, fire dampers, cable trays and power points without compromising the fire performance of the system, provided that the service penetrations are treated accordingly.

All construction details contained in this manual have been certified by BRANZ (Refer to BRANZ Assessment FC12549).

Note *Knauf Shaftwall systems are not suitable for use in external applications.*

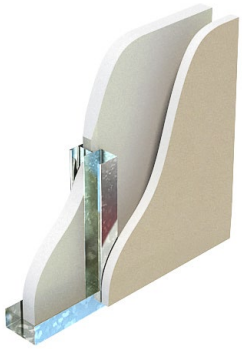
Standards

The following Australasian Standards are referenced or are relevant to this publication:

- AS/NZS 2588 Gypsum Plasterboard
- AS/NZS 2589 Gypsum Linings – Application and Finishing
- AS/NZS 1170.2 Structural Design Actions – Wind Actions
- AS 1170.4 Structural Design Actions - Earthquake Actions in Australia
- AS 1397 Steel Sheet and Strip – Hot Dipped, Zinc Coated or Aluminium/Zinc Coated
- AS 3566 Self-Drilling Screws for the Building and Construction Industries
- AS/NZS 4600 Cold-Formed Steel Structures
- AS/NZS 5216 Fastenings in Concrete
- AS/NZS 1530.4: AS 5637.1 Determination of Fire Hazard Properties
- AS/NZS 3837 Method of Test for Heat and Smoke Release Rates for Materials and Products using an Oxygen Consumption Calorimeter
- AS 1191-2002 Acoustics - Method for Laboratory Measurement of Airborne Sound Insulation of Building Elements
- AS/NZS ISO 717.1:2004 Acoustics - Rating of Sound Insulation in Buildings and of Building Elements, Part 1: Airborne Sound Insulation
- National Construction Code (NCC) requirements relevant to service riser and shaft walls are discussed below. Refer to the NCC for detailed requirements. Project specific requirements may apply and must be determined by the project design team.

DESIGN CONSIDERATIONS

Figure 1: Example of Knauf Shaftwall System SH60.1B



Fire Resistance

Knauf Shaftwall systems have been fire tested at CSIRO's laboratory at North Ryde in Sydney, and BRANZ's facilities in Wellington, New Zealand, and subsequently assessed and confirmed to achieve the Fire Resistance Level (FRL) specified within this manual.

Under the NCC, buildings are categorised into Types of fire-resistant construction, with Type A being the most fire-resistant and Type C the least fire-resistant.

Type A construction of non-loadbearing fire-resisting lift and stair shaft walls can require FRL -/90/90 for Class 2, 3 or 4 buildings, or FRL -/120/120 for Class 5, 6, 7, 8 or 9 buildings. Shaftwall systems can be used to satisfy these NCC provisions and ensure the required FRL is achieved in both directions as required in NCC Volume 1.

Table 1: Types of Fire-Resistant Construction

Rise in Storeys	Class of Building		
	2, 3	9	5, 6, 7a, 7b, 8
4 or more	A[1]	A[2]	A[2]
3	A[1]	A[2]	B[2]
2	B[1]	B[2]	C
1	C	C	C

NCC Specification 5 Requirements for Riser Walls.
[1] FRL -/90/90.
[2] FRL -/120/120.

Note *Refer to the NCC for definition of rise in storeys, types of construction for buildings of multiple classification and mixed types of construction.*

Penetrations in Knauf Shaftwall systems must be treated strictly in accordance with relevant test reports and approved installation details in order to maintain the system's Fire Resistance Level.

Where components by others are specified in Shaftwall penetration details (i.e. dampers, fire collars, etc.), such components must be installed in accordance with the manufacturer's specifications. It is the responsibility of the component manufacturer to ensure that the fire-rating performance of the Shaftwall system is not affected.
For component details within this manual, refer to the noted manufacturer's report.

Fire Hazard Properties

Knauf plasterboard linings have been tested to AS/NZS 3837 – Method of Test for Heat and Smoke Release Rates for Materials and Products using an Oxygen Consumption Calorimeter. These tests were conducted in accordance with AS 5637.1 to determine their Group Number Classification, as required by NCC Specification S7C4 Fire Hazard Properties - Walls and Ceilings.

The following Knauf plasterboard linings have achieved a Group 1 classification and have an Average Specific Extinction Area of less than 250 m²/kg, making them suitable for use in buildings not fitted with a sprinkler system, in accordance with BRANZ Assessment Report FC13971:

- 25 mm Shaftliner MouldStop
- 13/16 mm FireStop
- 13 mm ImpactStop
- 13/16 mm MultiStop ONE
- 13 mm MultiStop ONE HI.

DESIGN CONSIDERATIONS CONT.

Structural

Framing

Knauf specifies the use of steel components manufactured by Rondo Building Services Pty Ltd in all Shaftwall systems.

If other steel components are to be used it is the responsibility of the steel component manufacturer to substantiate equivalent or better performance than the recommended Rondo component, and the relevant building surveyor or fire engineer of the particular project to approve.

Additional information can be obtained from Rondo Building Services Pty Ltd offices around Australia, or by contacting 1300 367 663.

Structural Tests for Lightweight Construction

Knauf Shaftwall systems comply with the structural strength and serviceability requirements outlined in NCC Specification 6 'Structural tests for lightweight construction', with testing carried out at the Knauf NATA-accredited laboratory for this purpose.

Resistance to Static Pressure

Lightweight walls are to be tested for deflection and damage under static pressure when subjected to a uniformly distributed load of 0.25 kPa or 0.35 kPa (or its equivalent) depending on the location of the wall and the class of the building in which it is used.

Knauf Shaftwall systems have been tested to resist these loads and comply with the requirements of the Specification.

Resistance to Impact

Lightweight walls are also to be tested for deflection and damage under dynamic pressure when impacted by a 27.2 kg sandbag from a drop height of 150 mm.

Knauf Shaftwall systems have been tested under impact to comply with the requirements of the NCC.

Resistance to Surface Indentation

The surface indentation test is a measure of the surface hardness of the given material. It is tested by applying a load of 150 N through a steel ball of 10 mm diameter resting on the surface of the material. To comply with the NCC, no impression must be more than 5 mm in diameter at the end of the 5-minute test period.

Knauf FireStop, ImpactStop, MultiStop ONE, MultiStop ONE HI and Shaftliner MouldStop panels satisfy the requirements of this test. Refer to Technisearch Limited Test Report 425A.

Resistance to Repetitive Loads

Specification 6 has an additional requirement for lift shaft walls where the wall must be tested for damage when subject to one million cycles of a uniformly distributed load between 0 kPa and 0.25 kPa (or its equivalent). This is to emulate the movement of high-speed lift cars within the lift shaft of high-rise buildings that exert positive and negative air pressures on the enclosing walls.

Knauf Shaftwall with CH-stud framing has been tested for repetitive loads and was found to withstand the tests, demonstrating the ability to flex under these loads without sustaining damage. Refer to Test Report 890914.

Maximum Wall Heights

Knauf Shaftwall systems can use various combinations of CH-stud size and base metal thickness (BMT) to achieve a range of maximum wall heights. Shaftwall systems are most suited for lift shafts, or service risers that fall outside of the dimensional capabilities of Knauf Ventshaft.

Maximum wall heights tabulated below are not for axial loads but include self-weight and the lateral pressures stated. Shelf loading is not permitted for the above wall heights.

Table 2: Shaftwall Maximum Wall Heights (mm)

System	Stud Size (mm)	BMT (mm)	Serviceability Pressure	
			0.25 kPa	0.35 kPa
SH60.1B SH90.1A SH120.2A SH120.4A	64	0.55	2950 d	2640 d
		0.90	3460 d	3090 d
	102	0.55	3730 h	2660 h
		0.90	4980 d	4190 h
SH120.3A	64	0.55	3730 h	2660 h
		0.90	4380 d	3890 d
	102	0.55	3730 h	2660 h
		0.90	5510 d	4190 h

Height Limiting Factor: d = deflection (L/240 ≤ 20 mm); h = head track capacity.

Where Shaftwall wall heights exceed the available Shaftliner MouldStop panel height, Shaftliner MouldStop butt joints should be positioned within the upper and lower third of the wall and the joint reinforced with a horizontal section of CH-stud cut to fit between adjacent vertical studs. Joints in adjacent Shaftliner MouldStop panels should be staggered top and bottom to prevent a continuous horizontal join.

DESIGN CONSIDERATIONS CONT.

Head Track Reaction Capacities

The maximum wall heights shown in Table 2 need to be checked against the head track reaction capacities listed in Table 3 or Table 4, depending on the gap provided at the top of the CH-studs.

The tabulated maximum heights for Shaftwall systems in Table 2 are based on the following head track reaction and are applicable for 0.80 BMT Deflection Head Tracks and 20 mm max clearance at the top of CH-studs:

Table 3: Head Track Reaction Capacities for 20 mm Clearance

CH-Stud	Ultimate Design Connection Capacity (kN)	
	Stud Spacing (mm)	
	600	300
64CH55	0.47	0.43
64CH90	0.83	0.43
102CH55	0.43	0.43
102CH90	0.83	0.43

If 0.80 BMT Head Tracks are used for the head track with 10 mm max clearance at top of CH-studs, then the following head track reaction capacities can be used:

Table 4: Head Track Reaction Capacities for 10 mm Clearance

CH-Stud	Ultimate Design Connection Capacity (kN)	
	Stud Spacing (mm)	
	600	300
64CH55	0.47	0.47
64CH90	1.18	0.86
102CH55	0.43	0.43
102CH90	1.10	0.86

The head track capacities listed in the tables above rely on the plasterboard linings for restraint. Head track installation must be strictly in accordance with Knauf details contained within this manual. Refer to Rondo for alternative head track installation.

Seismic

Framing components and connections must be suitably designed by Rondo in accordance with AS1170.4 Earthquake Actions and other relevant Standards for use in seismic applications.

Structural Steel Framing

Knauf Shaftwall systems are designed as non-loadbearing partitions, but it is acceptable to include loadbearing structural elements at junctions or within the Shaftwall cavity. Where structural steel columns or beams are required for support of Knauf Shaftwall systems, elements should be designed and sized accordingly by the relevant structural engineer depending on the intended design loads.

J-tracks and/or CH-studs fixed to structural steel beams and columns should be installed prior to the application of fire proofing spray (e.g. vermiculite). Excess fireproofing should be removed from J-tracks, CH-studs, beams and columns before installing the SHAFTWALL system and H.B. Fuller Firesound sealant as required.

Superstructure Fasteners

Superstructure fasteners to be spaced at 600 mm max centres. Fasteners must be designed by the Project Engineer in accordance with AS 5216 and all other relevant Australian Standards and Provisions of the National Construction Code (NCC).

Fastener manufacturer/supplier to provide compliance documentation to ensure design intent is satisfied.

Note *Nylon anchors and drive pins are not acceptable concrete fasteners. Suitable fasteners include Rondo CERT-R-FIX or equivalent. Refer Rondo for details.*

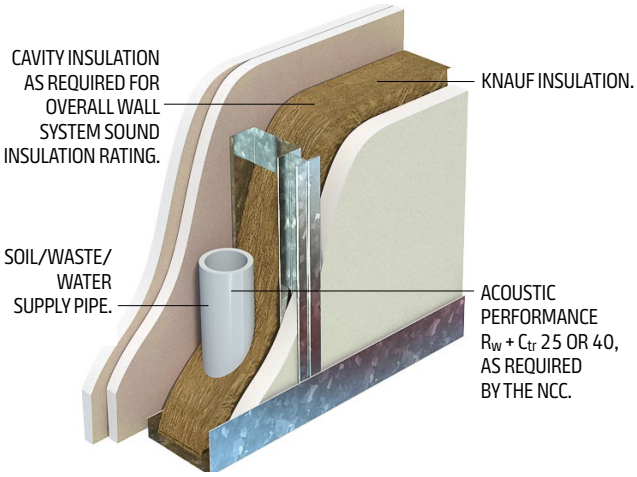
DESIGN CONSIDERATIONS CONT.

Acoustics

Knauf Shaftwall systems have been tested at the acoustic laboratories at CSIRO. Based on these and other tests, as well as mathematical modelling, Renzo Tonin & Associates Pty Ltd, have provided their professional opinions on the acoustical performance of Knauf Shaftwall systems.

The NCC requires an acoustic performance of $R_w + C_{tr}$ 25 for internal service risers if the adjacent room is a kitchen or non-habitable space, and a performance of $R_w + C_{tr}$ 40 if the adjacent room is habitable. Knauf Shaftwall systems can be used to satisfy the NCC provisions for the acoustic separation of soil and waste pipes within the shaft.

Figure 2: Shaftwall Services Separation



An acoustic performance of R_w 50 is required for a wall separating a sole-occupancy unit (SOU) from a lift shaft in accordance with the NCC. Lift shaft walls in an SOU are also required to comply with discontinuous construction, which requires a minimum 20 mm gap between 2 separate leaves.

Knauf Shaftwall systems do not meet the NCC requirements for discontinuous construction, however a false wall can be erected in front and spaced minimum 20 mm from the Shaftwall system to maintain an acoustic performance of R_w 50 and meet the discontinuous construction requirements. Refer to the project acoustic consultant for confirmation.

Acoustic performances for 0.55 BMT and 0.90 BMT CH-Studs are based on 600 mm stud spacing. Reduced stud spacing will adversely affect the acoustic performance of Shaftwall systems as it creates a more rigid connection across the wall.

Water Resistance

Water resistant plasterboard linings must be used in areas classified as Wet Areas in accordance with the NCC.

13 mm and 16 mm Knauf MultiStop ONE linings are treated in the manufacturing process to resist the effects of water and humidity, meeting the water resistant grade gypsum plasterboard requirements of AS/NZS 2588 and making them suitable for use in wet area applications.

For Shaftwall systems used in tiled applications, a deflection limit of Height/360 is used as tiles provide a brittle surface finish. Shaft walls used in tiled applications may achieve a reduced maximum height as a result and may require the use of increased CH-stud size or BMT to achieve the required height. Refer to Knauf for further details.

Note *Knauf MultiStop ONE can be used for all layers in wet area applications. Refer to Knauf for fixing specifications of MultiStop ONE linings in tiled applications.*

Mould Resistance

All Shaftliner panels are now manufactured as Shaftliner MouldStop. Shaftliner MouldStop contains the added advantage of mould resistance and showed zero signs of mould growth when tested in accordance with ASTM D3273 and ASTM G21.

Impact Resistance

Knauf MultiStop ONE linings are multi-attribute boards designed to meet specific performance requirements, including high impact resistance, fire resistance, and resistance to water and mould. The MultiStop ONE HI variant is further enhanced with a fibreglass mesh at the rear of the board, delivering very high impact resistance for applications requiring superior durability.

BRANZ assessment report FC15815 assesses the equivalence of the fire resistance performance of FireStop and MultiStop ONE/ONE HI. As such, MultiStop ONE or MultiStop ONE HI of equivalent thickness can be used in lieu of FireStop without adversely affecting the FRL of a system.

DESIGN CONSIDERATIONS CONT.

Air Infiltration

Knauf Shaftwall systems have been the subject of air infiltration testing by Ian Bennie & Associates in accordance with AS/NZS 4284:2008. Shaftwall specimens were preloaded to +/-500 Pa and incrementally tested in 50 Pa steps to +/-500 Pa and were tested with and without a perimeter seal of H.B. Fuller Firesound sealant. The measured air leakage rates were between < 0.1 L/m^{2}s at +/- 50 Pa and 0.2 L/m^{2}s at +/- 500 Pa. Refer to IBA Reports 2017-085-S1 and 2017-085-S2 for air leakage rates at each pressure interval with and without a perimeter seal respectively.

It is recommended to seal penetrations, peripheries and junctions with slabs, columns and similar abutments with H.B. Fuller Firesound sealant to minimise whistling, noise flanking and dirt accumulation due to air movement.

When air pressure exceeds 500 Pa, the air handling should be contained within a metal duct. Sealant selection, joint treatment, surface coatings and details to seal the wall under these sustained pressures, must be provided by the designer. Refer the project mechanical contractor for project specific information.

Fire-Rated Doors

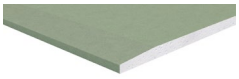
Proprietary steel door frames are ordered separately and supplied by the appropriate manufacturer. Fire-rated door frames must be installed in accordance with the manufacturer's installation specifications and details.

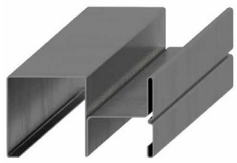
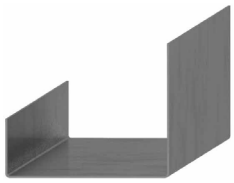
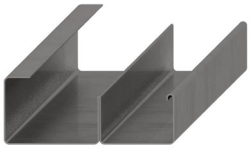
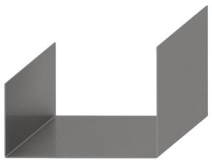
Refer to details on page 24 for typical fire-rated door installation details. Refer to the relevant door manufacturer for full details.

MATERIALS

Materials used in construction of Shaftliner MouldStop fire barrier are listed in the following table:

Table 5: Shaftwall Materials

Knauf Item Codes	Item Description	Product Image
00818588	25 mm Shaftliner MouldStop 600 x 3000 mm	
00818589	25 mm Shaftliner MouldStop 600 x 3600 mm	
00817937	13 mm FireStop 1200 x 3600 mm	
00817944	16 mm FireStop 1200 x 3600 mm	
00883065	13 mm Multistop ONE 1200 mm x 3600 mm	
00883063	16 mm Multistop ONE 1200 mm x 3600 mm	
00832942	6 g x 25 mm Type 'S' Fixing Screw	
00832938	10 g x 38 mm Type 'L' Laminating Screw	
00824145	CERT-R-FIX Fasteners M643	
00832982	10 g x 16 mm Type 'D' Drill Point Wafer Head Screws	
00795248	50 mm Knauf Insulation Glasswool 11 kg/m³ Density 450 mm	
00795255	50 mm Knauf Insulation Glasswool 14 kg/m³ Density 450 mm	
00820726	22 mm Promaseal IBS Strip	
00820727	29 mm Promaseal IBS Strip	
00820256	Firesound Mastic 600 ml Sausage	

Knauf Item Codes	Item Description	Product Image
00757896	64 mm x 0.55 BMT CH-Stud x 3000 mm	
00817776	64 mm x 0.55 BMT CH-Stud x 3600 mm	
00817777	64 mm x 0.90 BMT CH-Stud x 4500 mm	
00817781a	102 mm x 0.55BMT CH-Stud x 3600 mm	
00817782	102 mm x 0.55 BMT CH-Stud x 4300 mm	
00817783	102 mm x 0.90 BMT CH-Stud x 5500 mm	
00832916	64 mm x 0.80 BMT J-Track x 3000 mm	
00824056	102 mm x 0.80 BMT J-Track x 3000 mm	
00757897	64 mm x 0.55 BMT E-Stud x 3600 mm 102 mm x 0.55 BMT E-Stud x 3600 mm	
00817785	102 mm x 0.55 BMT E-Stud x 3600 mm	
00832908	64 mm x 0.80 BMT Deflection Track x 3000 mm	
00817787	102 mm x 0.80 BMT Deflection Track x 3000 mm	

MATERIALS CONT.

Table 6: Plasterboard to Plasterboard Fasteners

No. of Layers of Plasterboard x Thickness		Type L Screws for Fixing Plasterboard A to B
Plasterboard A	Plasterboard B	
1 x 13 mm	1 x 13 mm	10 - 8 x 32 mm
1 x 16 mm	1 x 16 mm	10 - 8 x 38 mm
1 x 16 mm	2 x 16 mm	6 - 8 x 50 mm

Screw designation given as (minimum screw gauge) - (threads per inch +1) x (minimum screw length).

Jointing & Finishing

Knauf has a comprehensive range of jointing and finishing compounds, and adhesives to meet market needs and varying climatic conditions.

This gypsum board range guide does not provide plasterboard installation, jointing and finishing details. Refer to Knauf Plasterboard Installation Manual or **knauf.com** for further information.

Table 7: Plasterboard to Steel Frame Fasteners

Plasterboard Thickness Plasterboard A	Type S or D Screw
1 x 13 mm	6 - 18 x 25 mm
1 x 16 mm	6 - 18 x 30 mm
2 x 13 mm	6 - 18 x 40 mm
1 x 25 mm	6 - 18 x 40 mm
1 x 13 mm + 1 x 16 mm	6 - 18 x 40 mm
2 x 16 mm	6 - 18 x 45 mm

Screw designation given as (minimum screw gauge) - (threads per inch +1) x (minimum screw length).

SYSTEMS

Table 8: Shaftwall Systems

Fire Resistance Level (refer to table)

FRL Basis: FC16109, FC15815

System Description

Side 1:
1 x 25 mm Shaftliner MouldStop (+ 1 x 16 mm FireStop if specified), IBS rod at the top of Shaftliner MouldStop

Framing:
Steel CH-studs (refer to table)

Insulation:
Refer to table

Side 2:
One or more layers of fire resistant pbd

Acoustic Ratings Basis: RT&A TE405-20S10

System	FRL	Lining Side 1	Lining Side 2	Nom Wall Width (mm)	Insulation* Stud Size (mm)	Nil $R_w(R_w+C_{tr})$	KI 50G11 $R_w(R_w+C_{tr})$
SH60.1B	–/60/60 from both sides	1 x 25 mm Shaftliner MouldStop	1 x 16 mm MultiStop ONE	80	64CH55	39(30)	47(35)
					64CH90	36(27)	44(32)
				118	102CH55	41(32)	48(39)
					102CH90	38(29)	45(36)
SH90.1A	–/90/90 from both sides	1 x 25 mm Shaftliner MouldStop	2 x 13 mm FireStop	90	64CH55	42(32)	50(40)
					64CH90	39(29)	47(37)
				128	102CH55	44(35)	50(41)
					102CH90	41(32)	47(38)
SH120.2A	–/120/120 from both sides	1 x 25 mm Shaftliner MouldStop	1 x 16 mm FireStop + 1 x 13 mm FireStop	93	64CH55	42(33)	50(40)
					64CH90	39(30)	47(37)
				131	102CH55	44(35)	51(42)
					102CH90	41(32)	48(39)
SH120.3A	–/120/120 from both sides	1 x 25 mm Shaftliner MouldStop	2 x 16 mm FireStop	96	64CH55	43(34)	50(40)
					64CH90	40(31)	47(37)
				134	102CH55	45(36)	51(42)
					102CH90	42(33)	48(39)
SH120.4A	–/120/120 from both sides	1 x 25 mm Shaftliner MouldStop 1 x 16 mm FireStop	1 x 16 mm FireStop	96	64CH55	42(33)	51(40)
					64CH90	39(30)	48(37)
				134	102CH55	45(36)	52(42)
					102CH90	42(33)	49(39)

* KI 50G11 50 mm Knauf Insulation Glasswool 11 kg/m³ density.

Max Wall Heights mm

System	Stud Size (mm)	Base Metal Thickness (mm)	Serviceability Pressure kPa 0.25	0.35
SH60.1b SH90.1A SH120.2A SH120.4A	64	0.55	2950 d	2640 d
		0.90	3460 d	3090 d
	102	0.55	3730 h	2660 h
		0.90	4980 d	4190 h
SH120.3A	64	0.55	3730 h	2660 h
		0.90	4380 d	3890 d
	102	0.55	3730 h	2660 h
		0.90	5510 d	4190 h

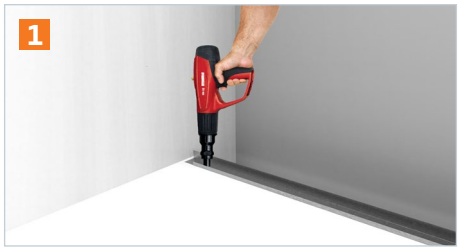
Height Limiting Factor: d - deflection (L/240 ≤ 20 mm), h – head track capacity.

Note *Any lining designated as FireStop can be replaced with MultiStop ONE/ONE HI plasterboard of equivalent or greater thickness without adversely affecting FRL or acoustic performance of the system. Replacing MultiStop ONE/ONE HI with FireStop may reduce acoustic performance.*

INSTALLATION PROCEDURES

General Installation Notes

- Where Shaftwall is to be erected around open shafts, ensure that suitable safety procedures are taken
- Stagger joints in adjacent layers or layers on opposite sides of the wall by 300 mm minimum horizontally and vertically
- Butt joints in FireStop linings must be backed by framing members
- FireStop linings should be cut to leave a 6 mm - 10 mm gap at the bottom of the sheets and at junctions or ends of the wall, and 20 mm maximum at the top to be continuously filled with H.B. Fuller Firesound sealant
- FireStop linings should not be fixed to the top and bottom tracks, except for Shaftwall systems enclosing lifts
- Screw fasteners should be located 10 mm to 16 mm from the sheet edge
- Friction fit all CH-studs by pushing them down completely into the bottom track. CH-studs must not be screw-fixed to the top and bottom tracks



Step 1: Install Floor and Soffit Tracks

- Accurately mark wall layouts
- Cut the floor J-track and soffit Deflection Track 20 mm shorter than the required length of the wall
- Align the floor and soffit tracks with the smaller flange facing the storey side and fix with approved concrete fasteners maximum 100 mm from ends and at 600 mm maximum centres

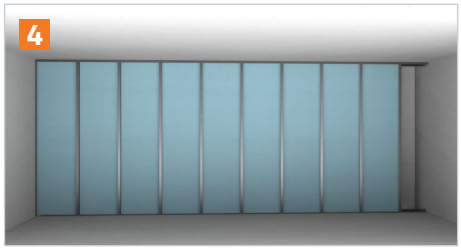
Step 2: Install Wall Track

- Cut the smaller flange off both ends of the floor and soffit tracks to a maximum distance of 60 mm to allow easier installation of wall track
- Cut the end track 20 mm short of the required wall height to allow for expansion and align the smaller flange to face the storey side. For E-studs, position the central flange closest to the shaft side of the wall
- Fix the end track with approved concrete fasteners maximum 100 mm from ends and at 600 mm maximum centres

Step 3: Install First Shaftliner Mouldstop Panel and CH-Stud

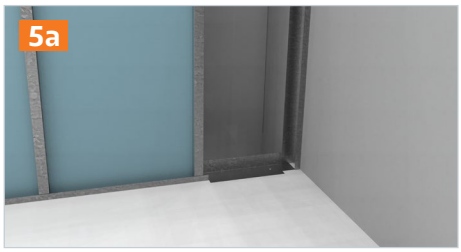
- Cut the Knauf Shaftliner MouldStop panel 25 mm shorter than the required height, position vertically between the floor and soffit tracks, and push tight against the flange on the shaft side of the wall
- For wall J-tracks, screw fix the Shaftliner Mouldstop panel to the larger flange with 6 - 18 x 40 mm Type S or D screws at 300 mm maximum centres
- Cut the first CH-stud maximum 20 mm shorter than the required height, position vertically and push tight against the installed Shaftliner Mouldstop panel
- Ensure the Shaftliner Mouldstop panel is fully inserted in the ‘H’ section

INSTALLATION PROCEDURES CONT.



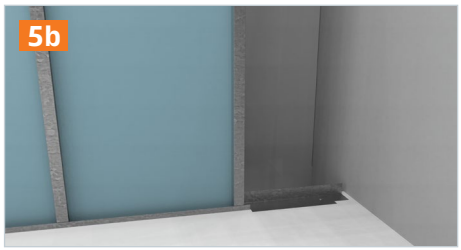
Step 4: Subsequent Shaftliner MouldStop Panel and CH-Stud Installation

- Cut the next Shaftliner MouldStop panel 25 mm shorter than the required height, align vertically and push tight into the H-section of the first CH-stud
- Cut the next CH-stud maximum 20 mm shorter than the required height and friction fit the H-section against the edge of the Shaftliner MouldStop panel
- Repeat this process until the final Shaftliner MouldStop panel



Step 5a: Install the Final Shaftliner MouldStop Panel

- Snip and fold the narrow flange of the bottom J-track to allow for easier installation of the final panel
- Cut the end J-track 20 mm shorter than the required height and fix with approved concrete fasteners maximum 100 mm from ends and at 600 mm maximum centres
- Cut the final Shaftliner MouldStop panel 20 mm short of the remaining width, align and push tight into the ‘H’ section of the last CH-stud
- Screw fix the Shaftliner MouldStop panel to larger flange of the wall track with 6 - 18 x 40 mm Type S or D screws at 300 mm maximum centres
- Pack the 20 mm gap between the end of the Shaftliner Mouldstop panel and the wall track with 29 mm Promaseal IBS strip



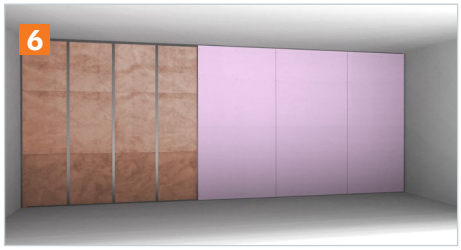
Step 5b: Alternative Installation of Final Shaftliner MouldStop Panel

- Instead of installing a J-track, an E-stud can be pre-fit on the edge of the final Shaftliner Mouldstop panel and the assembly pushed tight into the ‘H’ section of the last CH-stud and aligned into place
- Once aligned, the E-stud can be fixed with approved concrete fasteners maximum 100 mm from ends and at 600 mm maximum centres

Shaftliner MouldStop Butt Joints

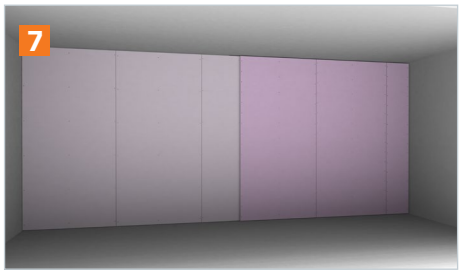
- Where Shaftwall wall heights exceed the available Shaftliner MouldStop panel height, Shaftliner MouldStop butt joints should be positioned within the upper and lower third of the wall and the joint reinforced with a horizontal section of CH-stud cut to fit between adjacent vertical studs
- Joints in adjacent Shaftliner MouldStop panels should be staggered top and bottom to prevent a continuous horizontal join
- CH-studs to be installed as a single length full height. Stud splicing is not permitted in fire-rated applications

INSTALLATION PROCEDURES CONT.



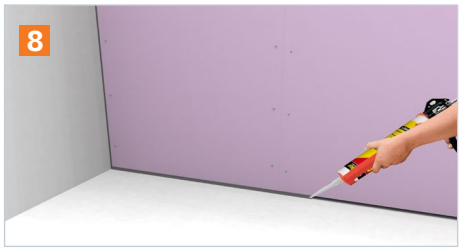
Step 6: Install First Layer of FireStop

- Install Knauf insulation in CH-stud cavity as specified
- Fix Knauf FireStop lining 60 mm - 100 mm from top and bottom, and at 600 mm maximum centres along studs, sheets ends, corners, and at openings



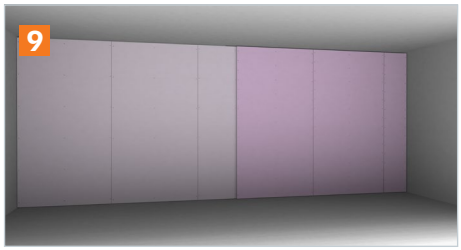
Step 7: Install Second Layer of FireStop (or Face Layer of Single Layer Systems)

- Install second layer of Knauf FireStop lining vertically or horizontally
- If Shaftwall height exceeds FireStop length, cut the first sheet minimum 300 mm short so ensure joints are staggered between layers
- Fix 60 mm - 100 mm from top and bottom, at 300 mm maximum centres along studs, and at 200 mm maximum centres at sheets ends, corners, and at openings



Step 8: Caulking

- Continuously fill all perimeter gaps with H.B. Fuller Firesound sealant



Step 9: Jointing and Finishing

- Shaftwall is now ready for decoration preparation, finish all joints and internal and external corners in the face layer with the appropriate Knauf jointing system as outlined in Knauf Plasterboard Installation Manual
- Paper tape must be used in Knauf fire-rated systems
- Joints in inner layers of multi-layered Shaftwall systems are not required to be taped and set
- Corners in Shaftwall system to be reinforced with corner beads as required. Note that this is not part of the fire-rated system

INSTALLATION DETAILS

Figure 3: Shaftwall Installation Details

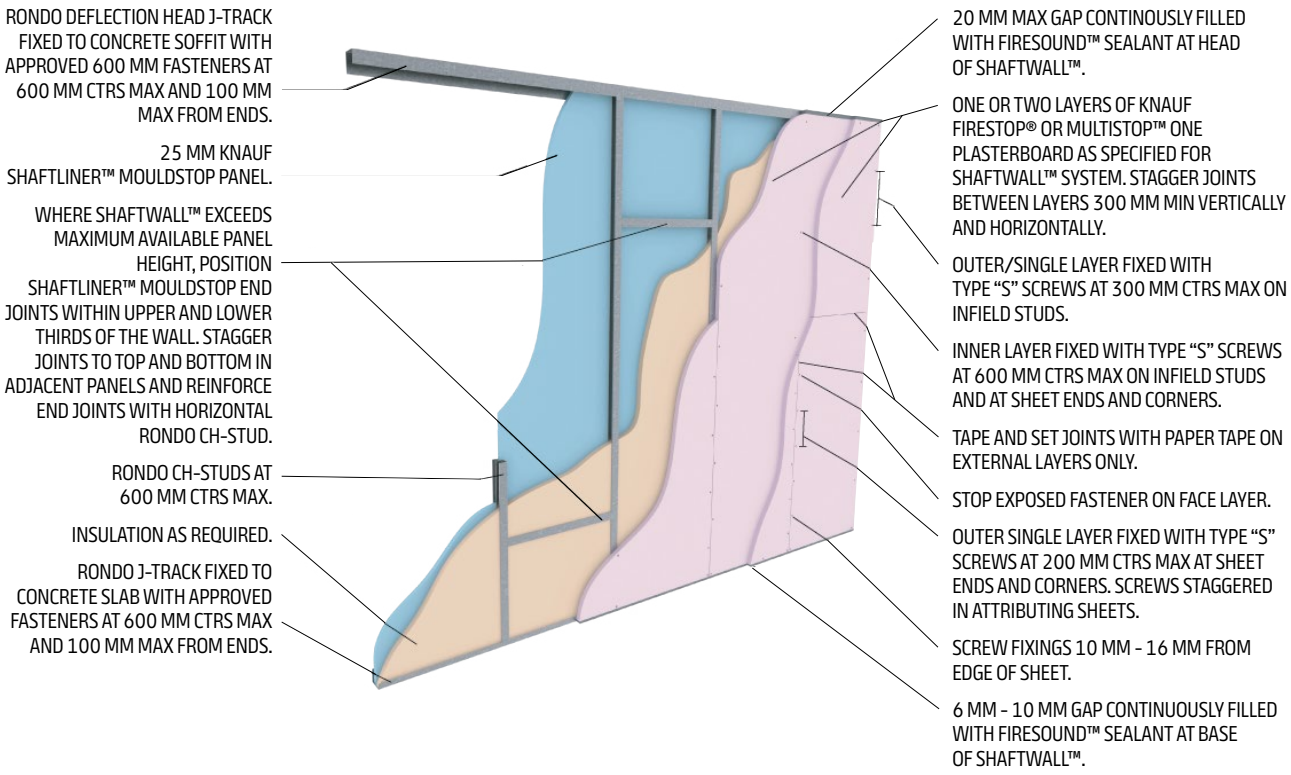
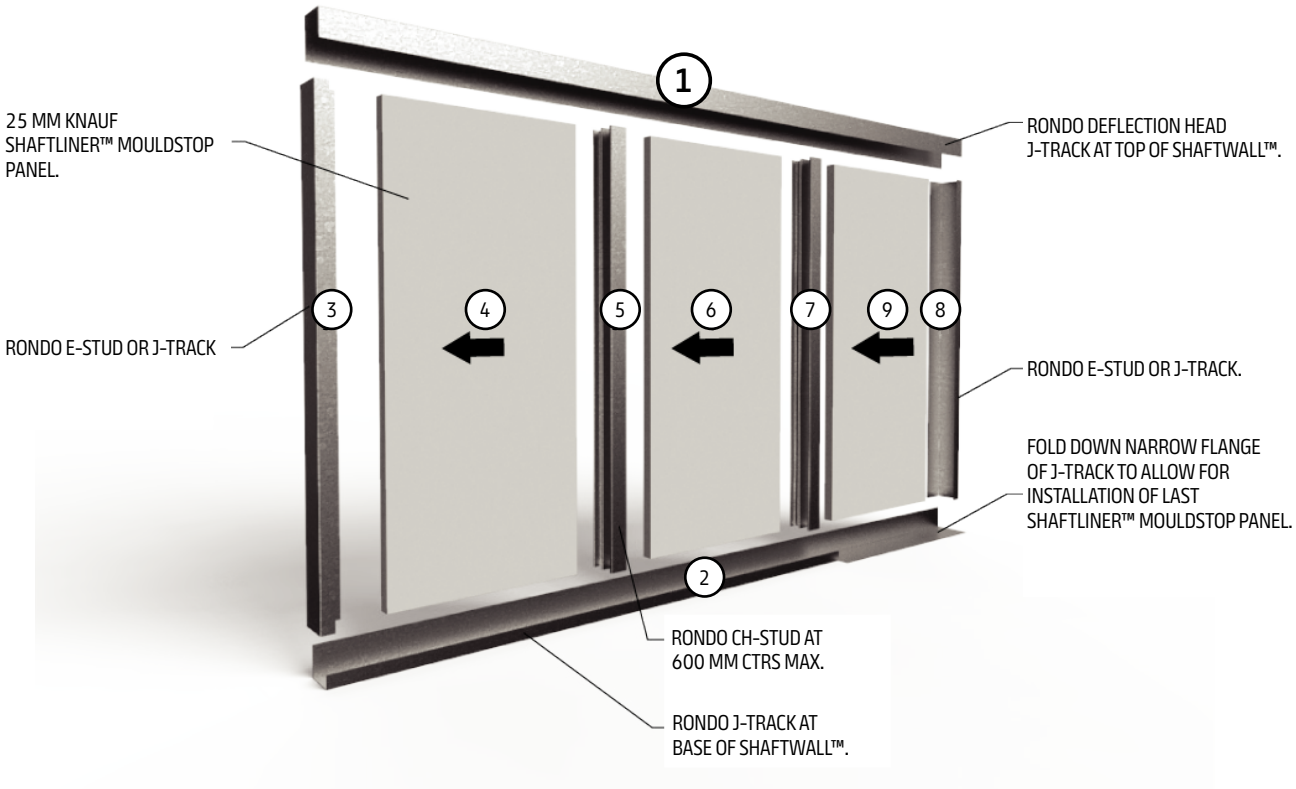


Figure 4: Shaftwall Installation Order



INSTALLATION DETAILS CONT.

Figure 5: Corner Track Fixing

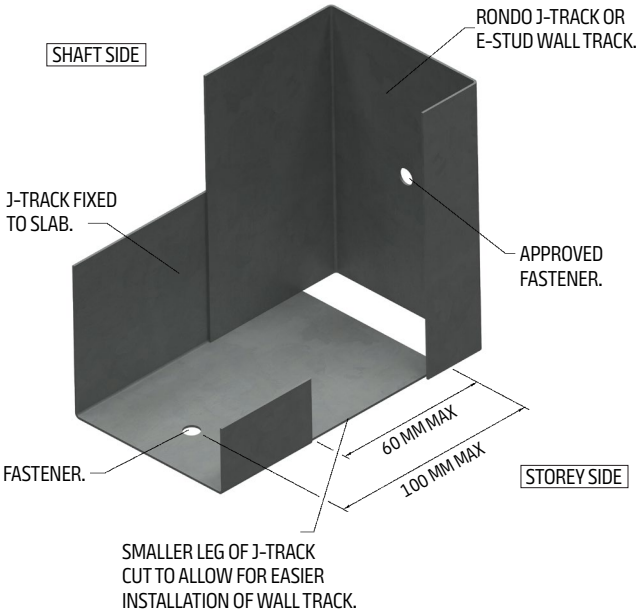


Figure 6: Deflection Head Track

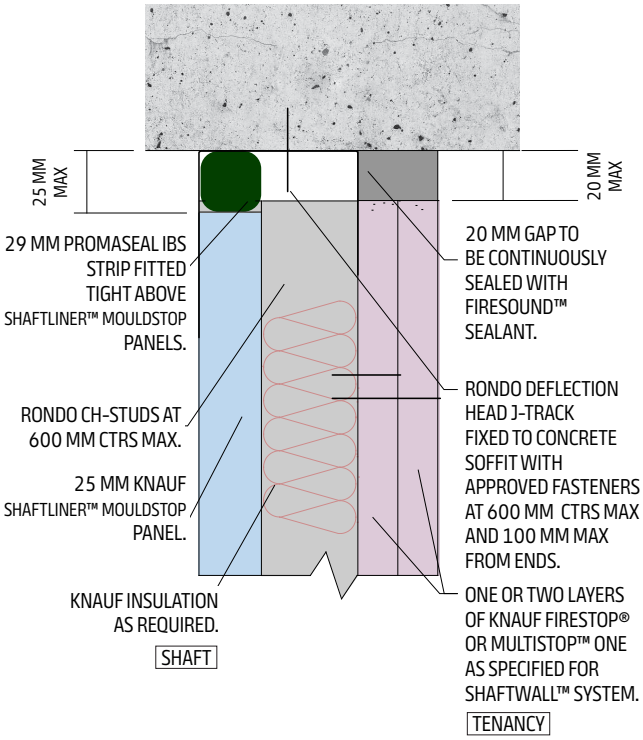


Figure 7: Base Track

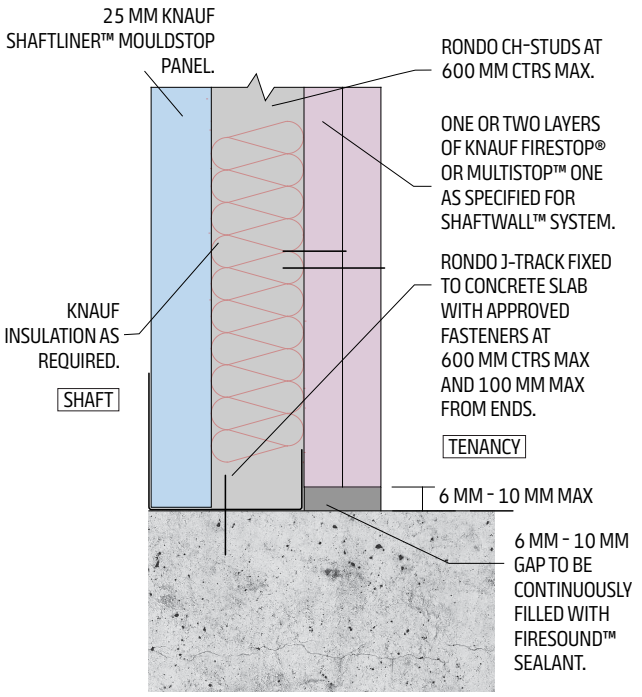
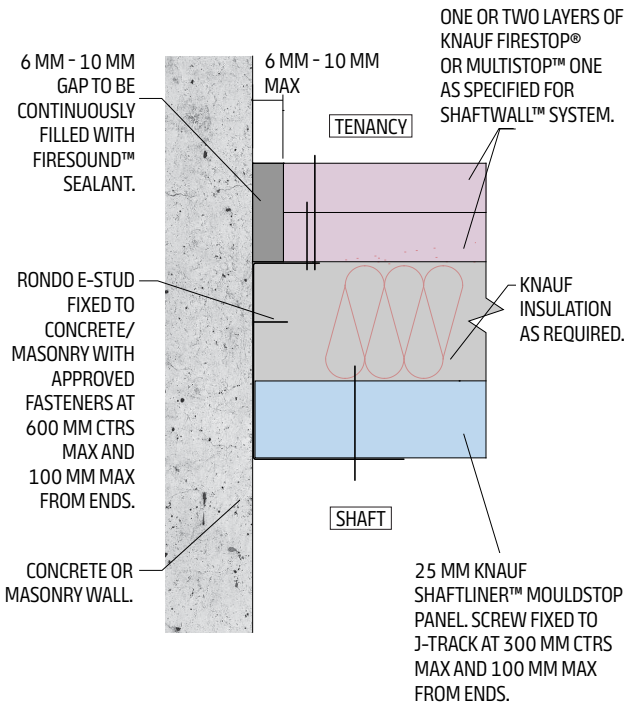


Figure 8: J-Track Wall Track



INSTALLATION DETAILS CONT.

Figure 9: Alternative Installation of Final J-Track

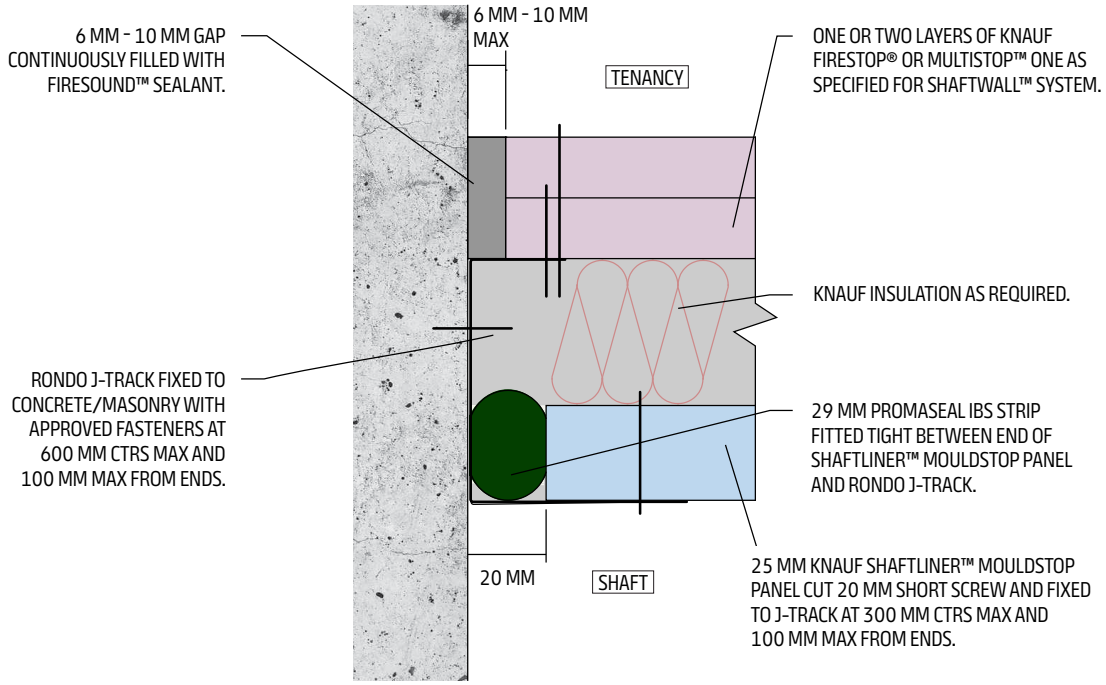


Figure 10: E-Stud Wall Track

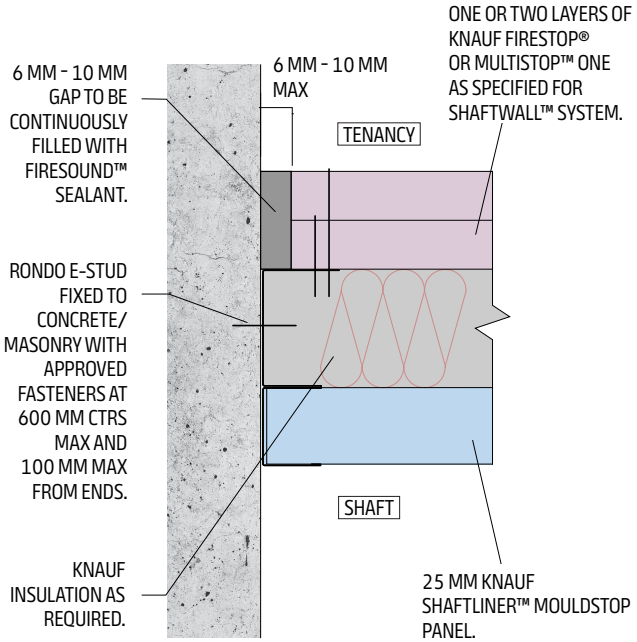
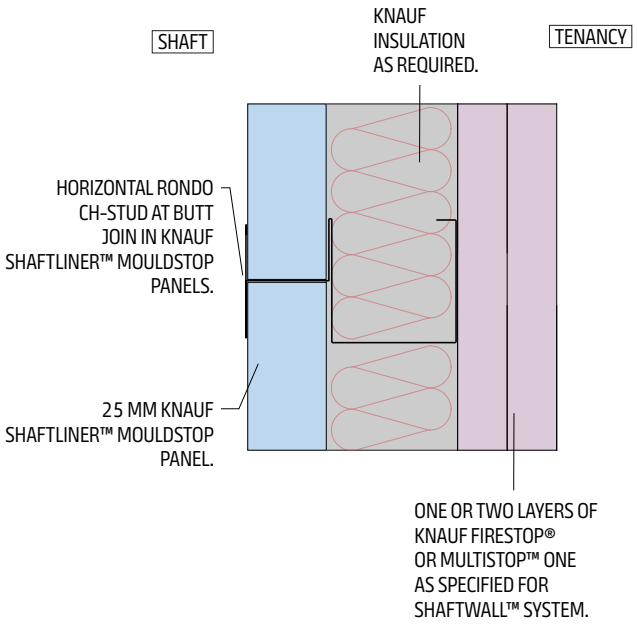


Figure 11: Horizontal Butt Joint



INSTALLATION DETAILS CONT.

Figure 12: Internal & External Corners

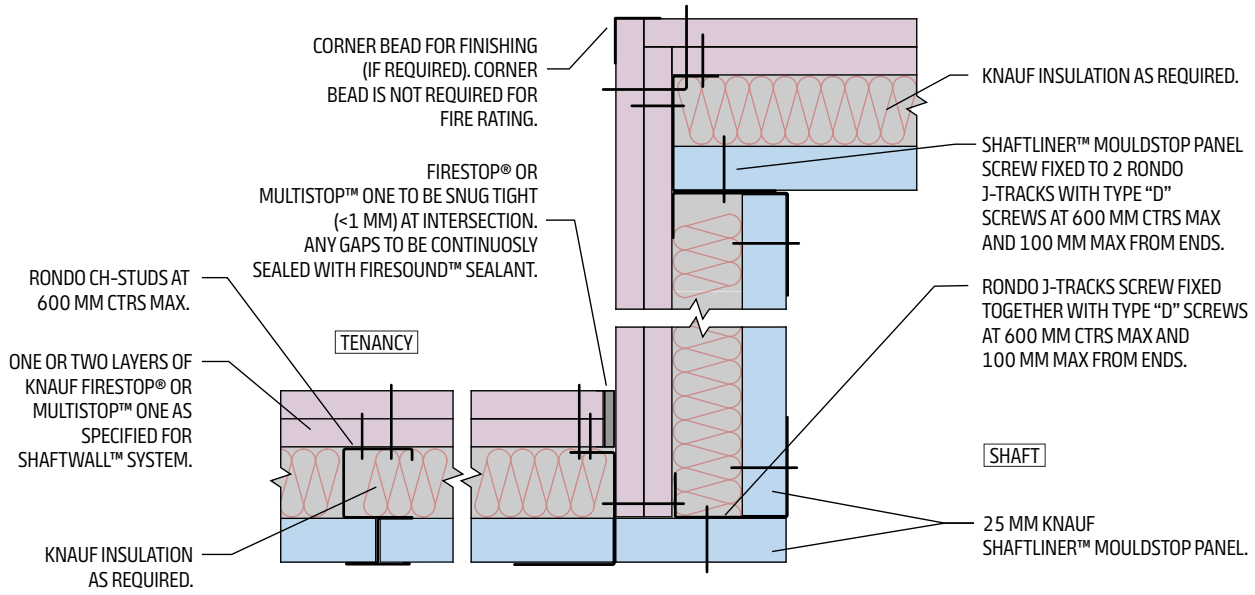
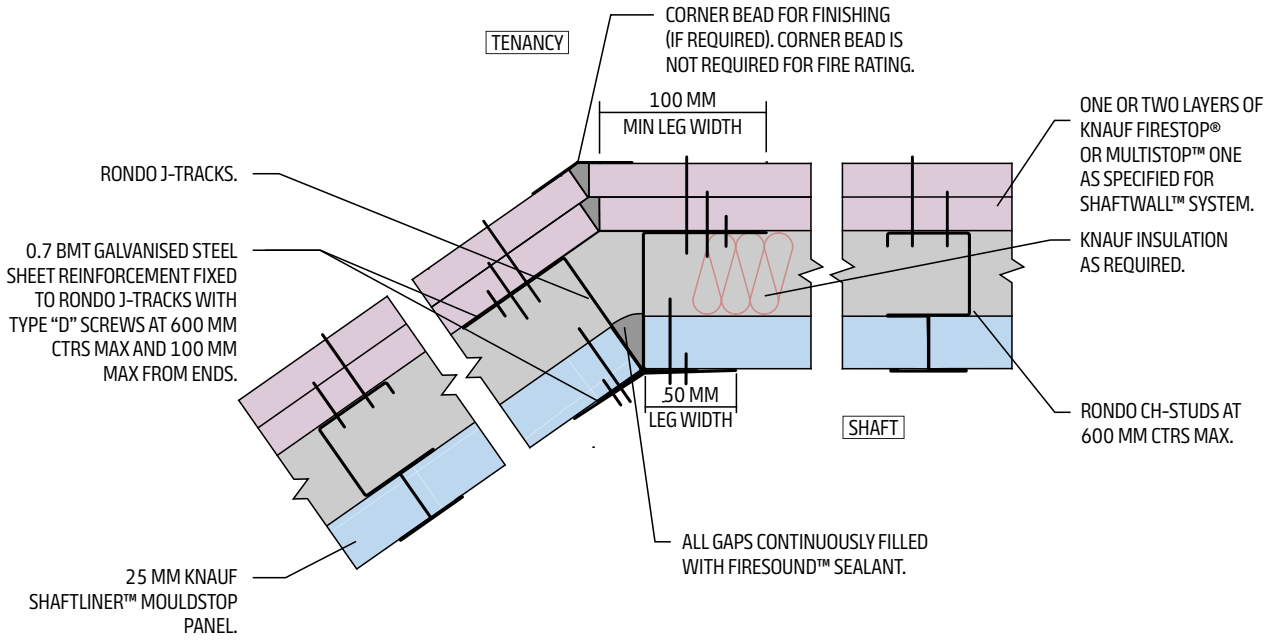


Figure 13: Oblique Corner Detail



INSTALLATION DETAILS CONT.

Figure 14: Intersection Detail

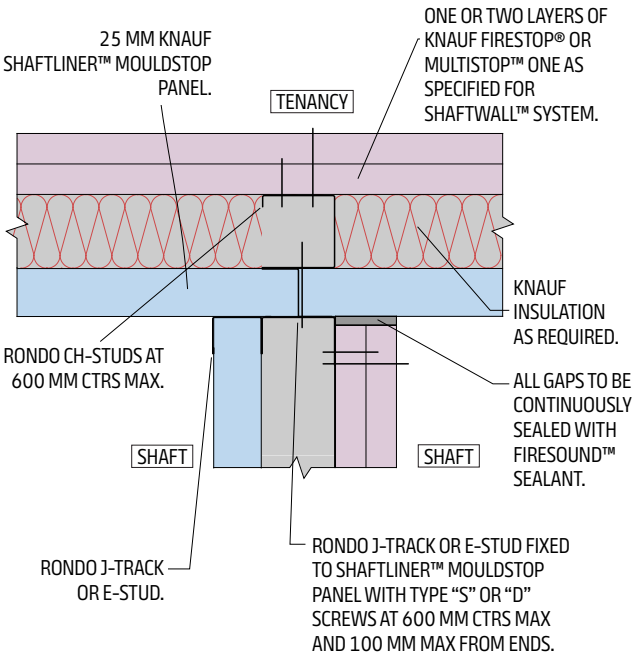


Figure 15: A Control Joint

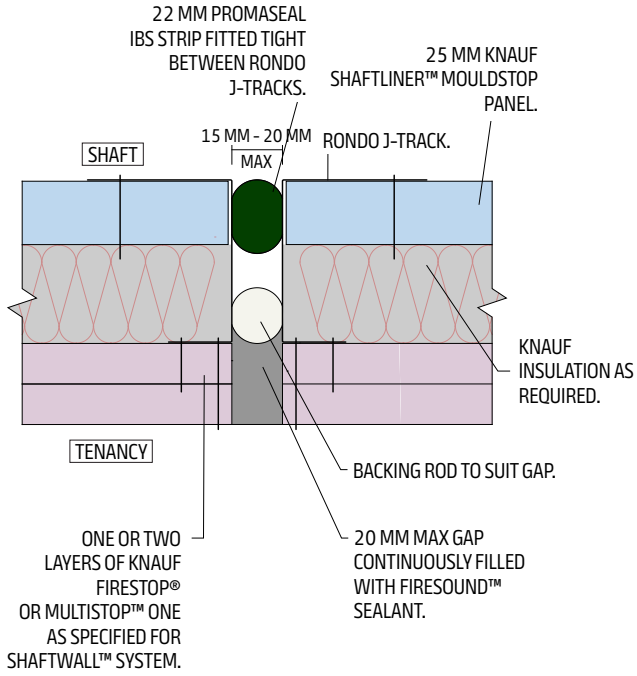


Figure 16: Steel Beam Deflection Head Junction

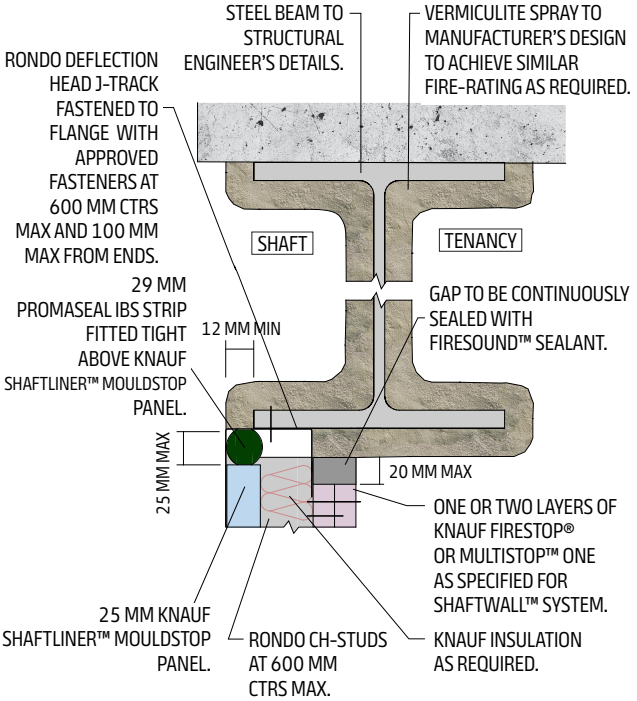
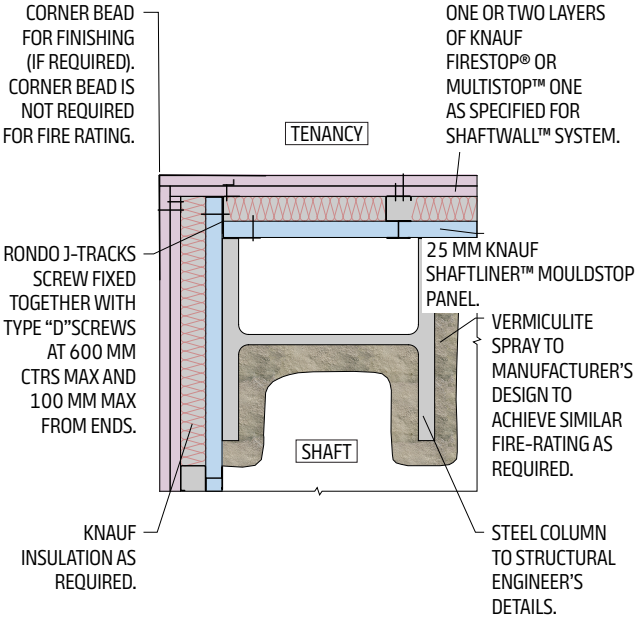


Figure 17: Column Corner Detail



INSTALLATION DETAILS CONT.

Figure 18: Column Junction Detail

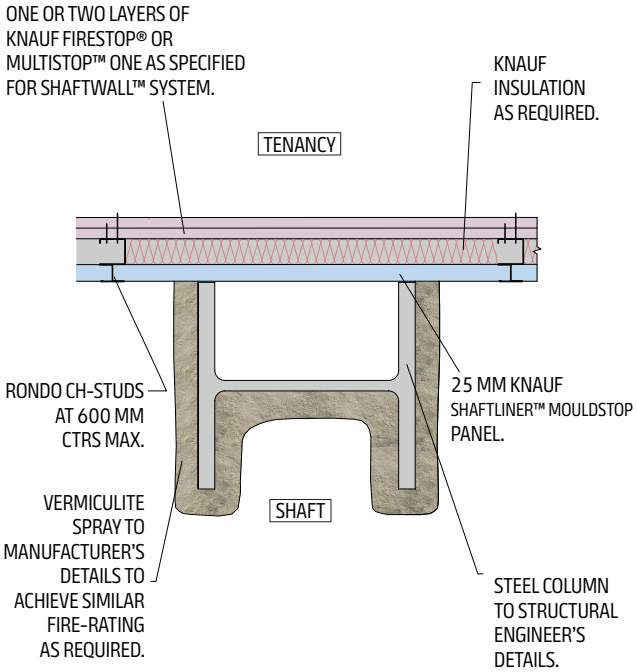


Figure 19: Steel Beam Deflection Head Junction with Offset Plate

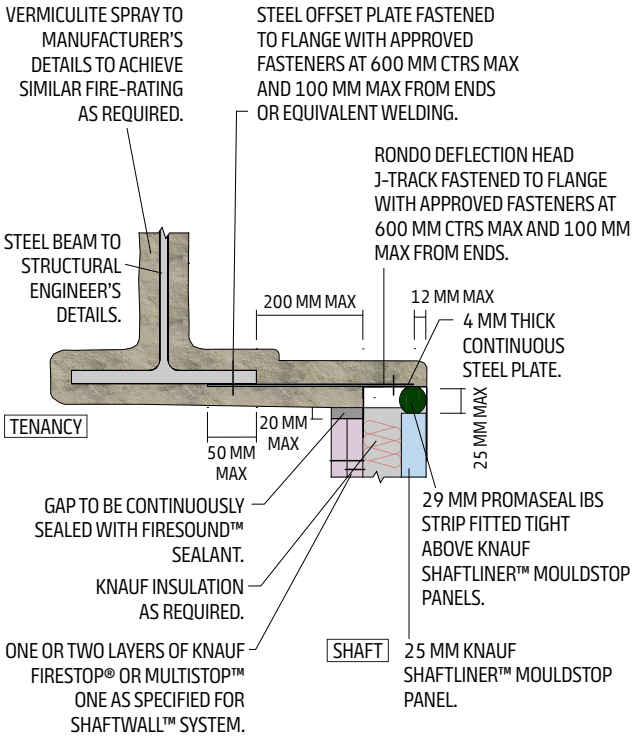


Figure 20: Beam Junction Detail

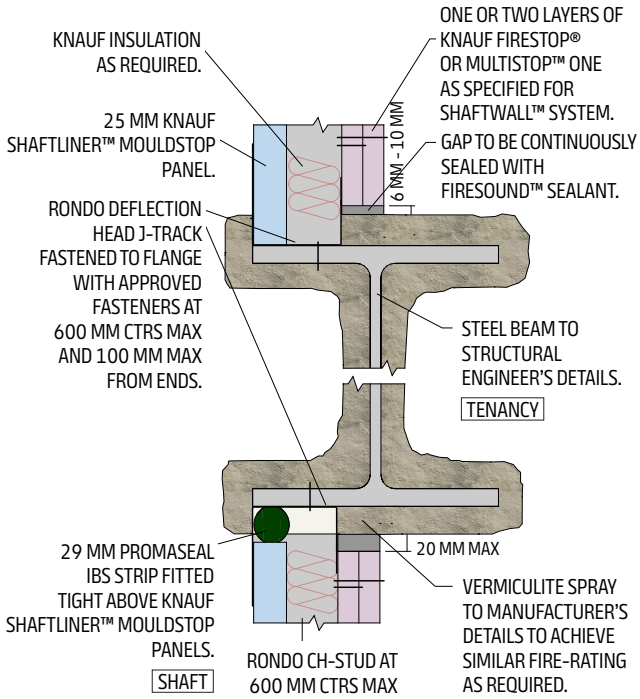
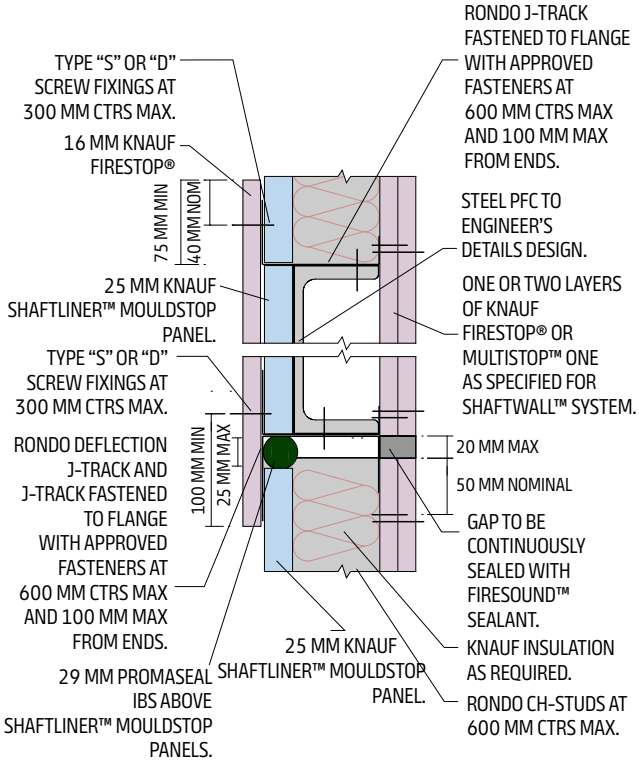
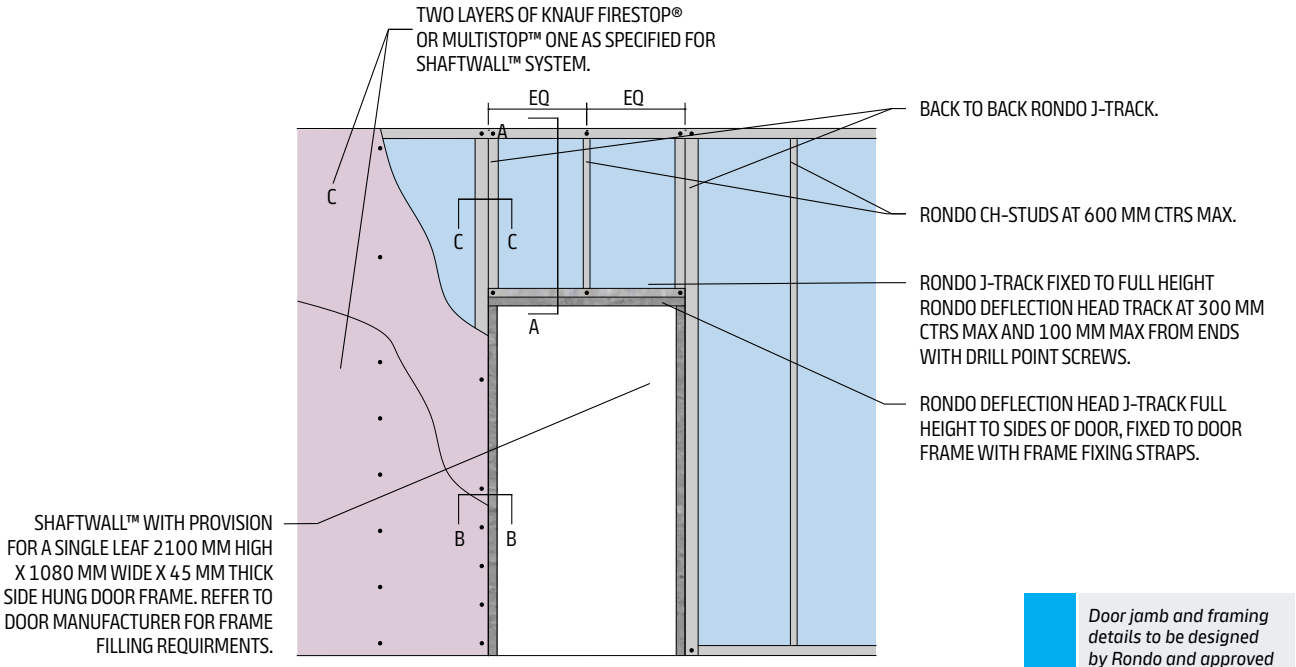


Figure 21: Encased Beam Detail



INSTALLATION DETAILS CONT.

Figure 22: Fire Door Opening



Note *J-tracks, deflection head J-track and CH-studs to be fixed to bottom and top tracks.*

Figure 23: Section A-A Over Door Frame

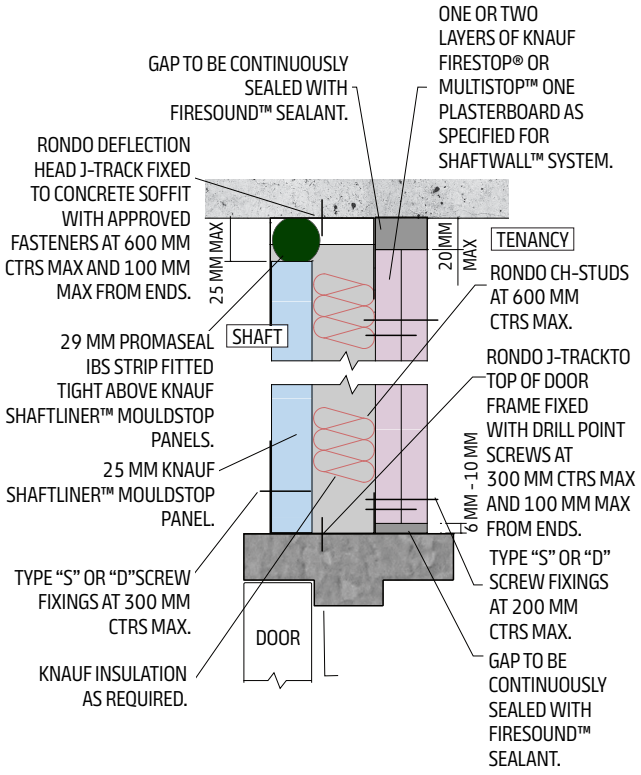
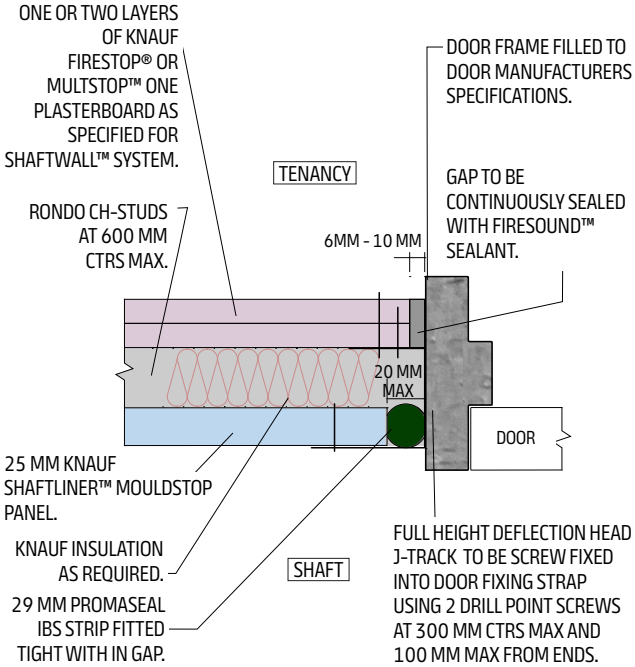


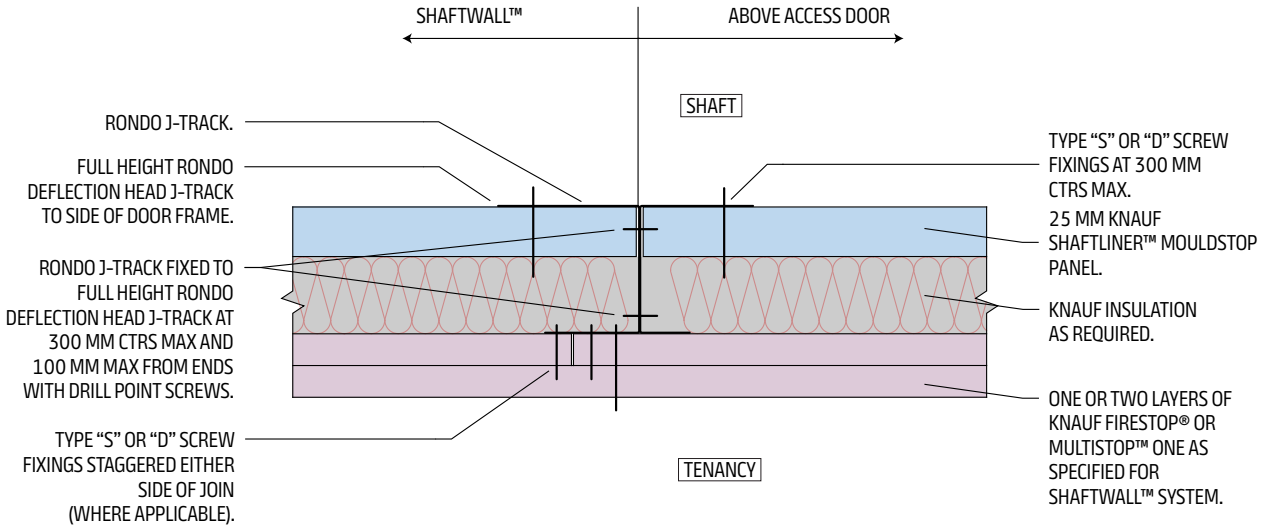
Figure 24: Section B-B Door Jamb



Note *Door jamb and framing details to be designed by Rondo and approved by the project engineer depending on side of door opening and wall height. Details are typical only and may vary depending on the door type and manufacturer. Refer to the appropriate manufacturer for full details.*

INSTALLATION DETAILS CONT.

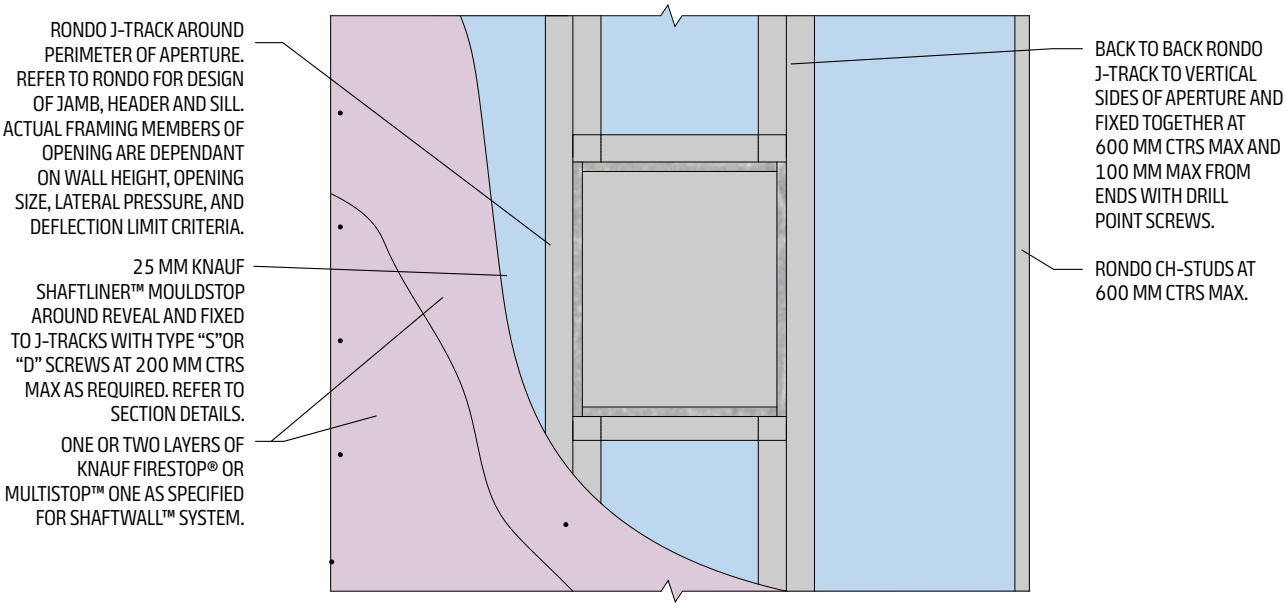
Figure 25: Section C-C Above Door Opening



Note

Door jamb and framing details to be designed by Rondo and approved by the project engineer depending on side of door opening and wall height. Details are typical only and may vary depending on the door type and manufacturer. Refer to the appropriate manufacturer for full details.

Figure 26: Lorient Fire Damper Opening



Note

These damper penetration details are specific to Lorient LVH44 Intumescent Fire Dampers. Details may vary depending on the damper type and manufacturer. Refer to the appropriate damper manufacturer for report and full details, including alternative or additional fixing details.

INSTALLATION DETAILS CONT.

Figure 27: Lorient Fire Damper Section Detail Single Layer

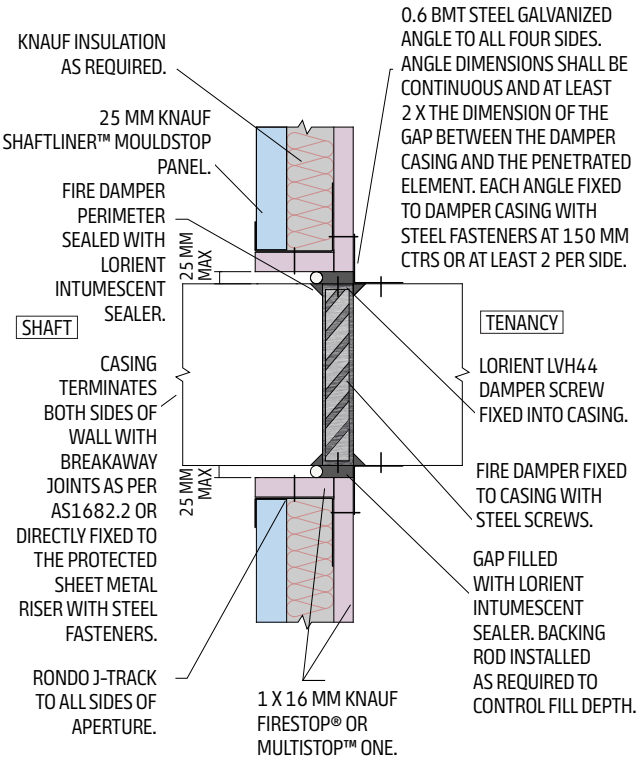
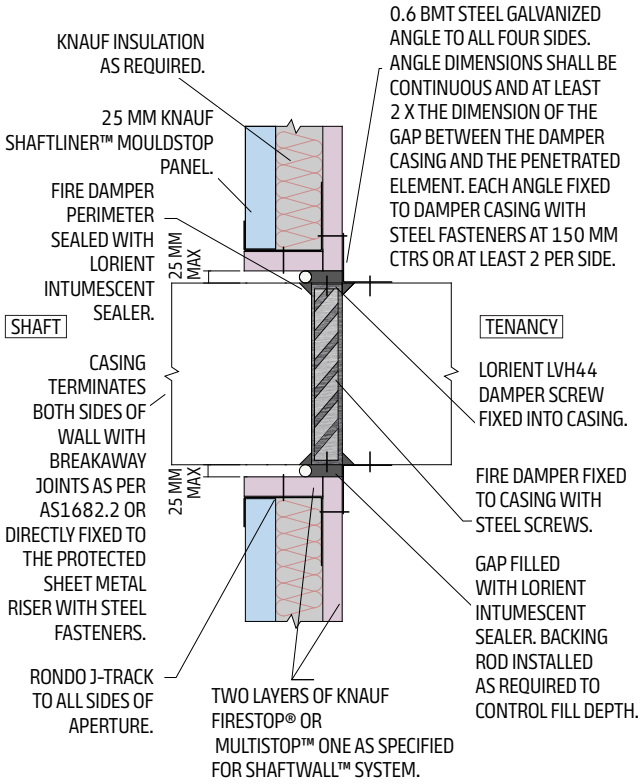


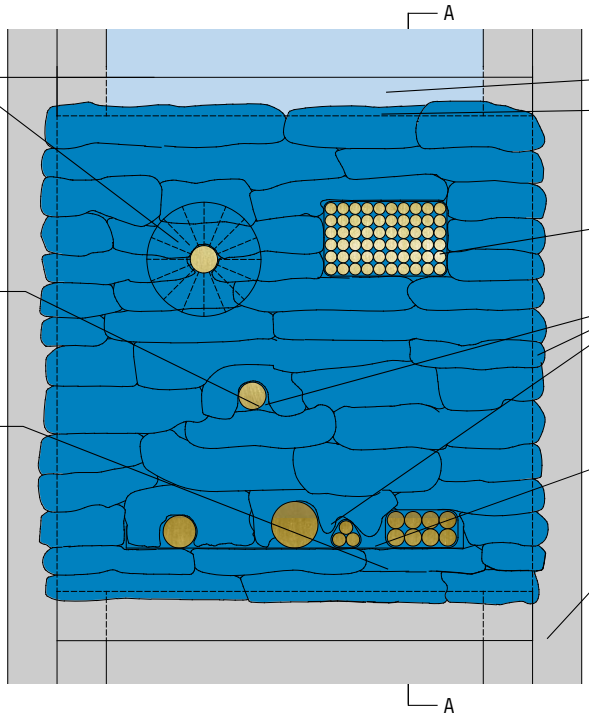
Figure 28: Lorient Fire Damper Section Detail Double Layer



Note

Max single cell size: 600 mm x 600 mm. Detail shown is specific to Lorient LVH44 Intumescent Fire Dampers. Details may vary depending on the damper type and manufacturer. Refer to the appropriate damper manufacturer for report and full details, including alternative or additional fixing details.

Figure 29: Penetrations Through Large Opening – Elevation



SERVICE A:

FYRE-GUARD USED FOR 32 MM BRASS/COPPER PIPES WHERE INSULATION CRITERIA OF FRL IS REQUIRED. REFER TO PROMAT PROMASEAL SUPAWRAP FOR DETAILED SPECIFICATIONS.

SERVICE C:

32 MM MAX DIAMETER BRASS/COPPER PIPE.

PROMAT PROMASEAL PILLOWS (ASSORTED SIZES TO SUIT). PILLOWS TO BE STAGGERED BETWEEN LAYERS.

RONDO J-TRACK TO PERIMETER OF OPENING.

550 MM X 550 MM MAX OPENING (SHOW DASHED).

SERVICE B:

10 X 6 BUNDLE OF TELECOMMUNICATION CABLES.

ALL JOINTS AND CONTACT POINTS CAULKED WITH PROMASEAL-A ACRYLIC SEALANT.

SERVICE D:

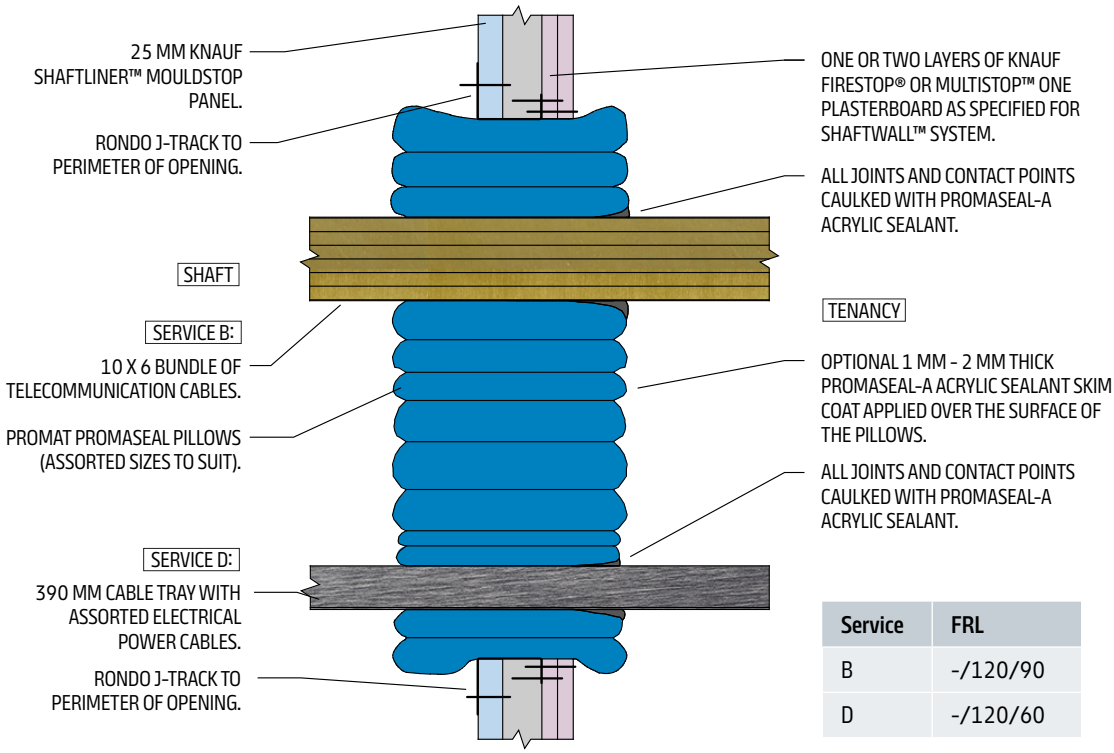
390 MM CABLE TRAY WITH ASSORTED ELECTRICAL POWER CABLES.

BACK TO BACK RONDO J-TRACK TO VERTICAL SIDES OF APERTURE AND FIXED TOGETHER AT 600 MM CTRS MAX AND 100 MM MAX FROM ENDS WITH DRILL POINT SCREWS.

Service	FRL
A	-/120/120
B	-/120/90
C	-/120/60
D	-/120/60

INSTALLATION DETAILS CONT.

Figure 30: Penetrations Through Large Opening – Section A-A



Service	FRL
B	-/120/90
D	-/120/60

Figure 31: Metal Pipe Penetration Detail Option 1

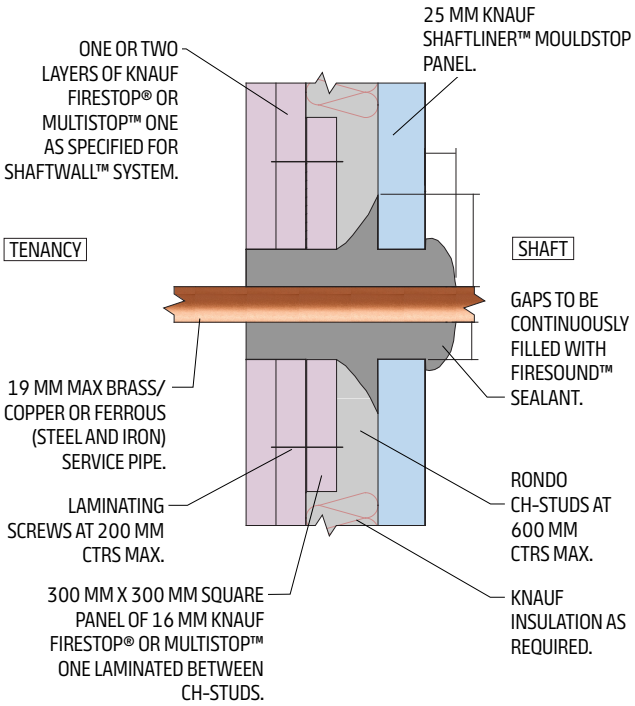
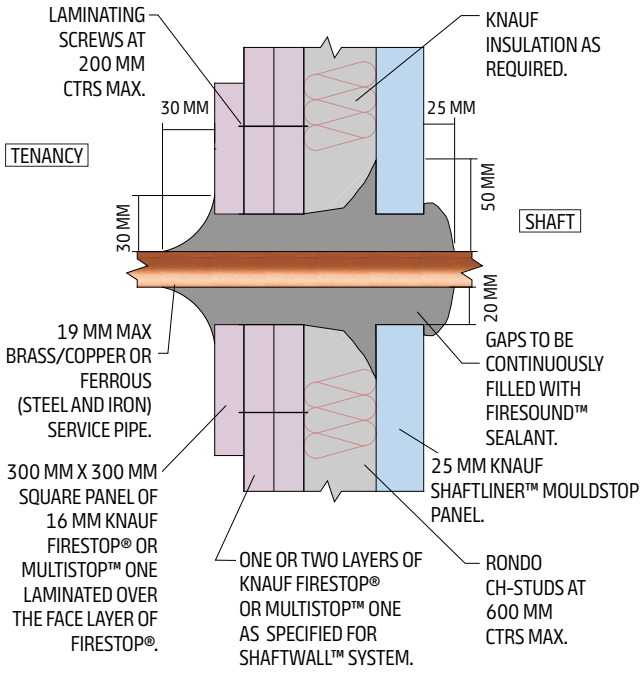


Figure 32: Metal Pipe Penetration Detail Option 2



INSTALLATION DETAILS CONT.

Figure 33: uPVC Pipe Penetration

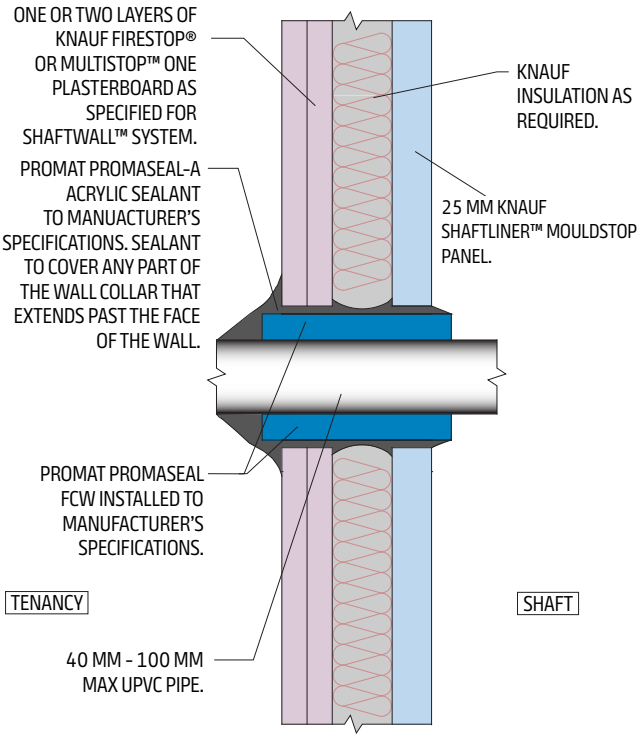


Figure 34: Metal Pipe Penetration

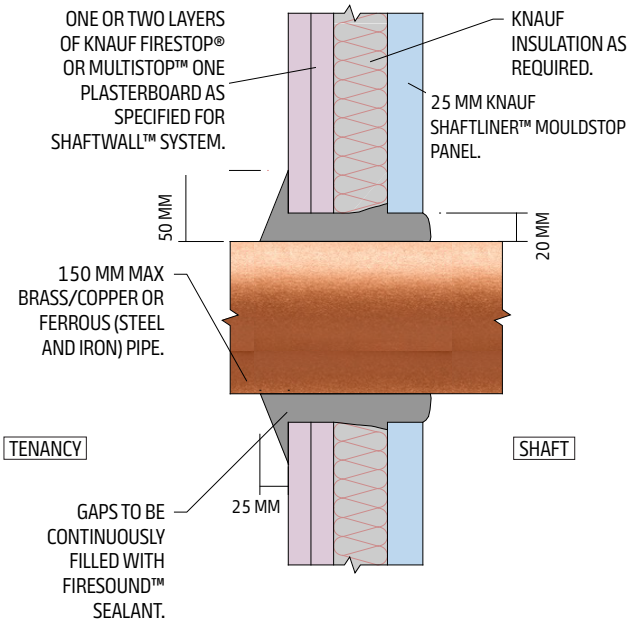


Figure 35: Cable Tray Penetration

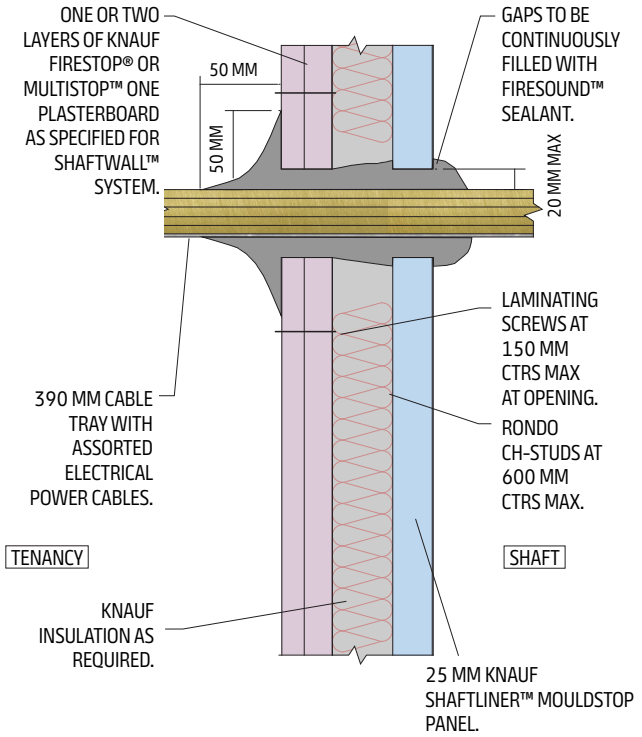
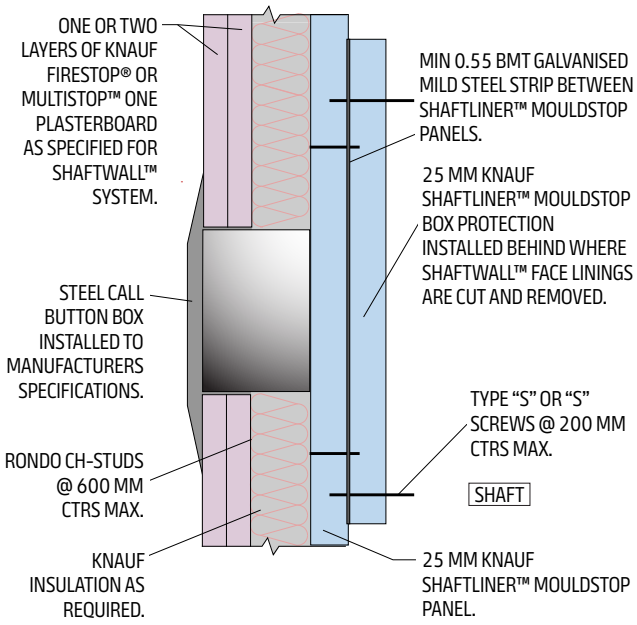


Figure 36: Call Button Penetration



BUILDING THE FUTURE TOGETHER.

The Knauf Group is one of the world's leading manufacturers of modern insulation materials, dry lining systems, plasters and accessories, thermal insulation composite systems, floor screed, floor systems, and construction equipment and tools. With more than 300 production facilities and sales organisations in over 90 countries, 42,000 employees worldwide, and sales of €12.6 billion, the Knauf Group is one of the largest players in the industry, holding market share in Europe, the United States (US), South America, Asia, Africa, and Australia.

The Knauf Group believes that the best innovations start with a purpose; a focus on why the innovation is needed and who will benefit from it. The business's focus is to deliver innovations that help companies in the construction sector to work smarter, do more, and build better. This is achieved through investing in purposeful innovation, expanding into different markets and constantly searching for new ways to increase performance and productivity. This commitment to innovation and focus on customers is inspired by a desire to empower architects, contractors, and workers alike to improve the way societies live by changing the way buildings are designed and built. Knauf is committed to delivering only the best to its customers and partners.

knauf.com

Sales Enquiries

1800 003 377

To purchase Knauf plasterboard and other building materials including insulation, cornice, compounds, ceilings and accessories visit the Where To Buy page on our website for a list of Knauf Fulfilment Centres and distributors.

TecASSIST

1800 811 222

Our National TecASSIST helpline is available to answer technical questions and provide free advice to builders, contractors, architects, engineers and home owners throughout Australia.

Technical Resources

knauf.com/en-AU/tools/download-center

Find all of Knauf's technical literature in our comprehensive Download Centre. From CAD files to certifications, installation guides and data sheets - our most up to date product and system information is at your fingertips.

knauf.com

Knauf Gypsum Pty Ltd. ABN 84 004 231 976. 3 Thackeray Street, Camellia NSW 2142, Australia.

22.09.2025_GYAU250820/11

Build on us.